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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,608	05/25/2001	Toshikazu Hamamoto	JG-YY-5079 (500569.20067)	4149

26418 7590 04/15/2004

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EXAMINER	
CANTELMO, GREGG	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/865,608	HAMAMOTO ET AL.	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *December 31, 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendment received December 31, 2003:

   a. Claims 2 and 10 are cancelled. Claims 1 and 3-9 are pending;

   b. The prior art rejections of record are withdrawn in light of Applicant's arguments. In particular that the weight percent of the biphenyl additive is greater than 0.8 wt%.

Information Disclosure Statement

2. The information disclosure statement filed December 31, 2004 has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Objections

3. Claim 4 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 and 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '258.

JP '258 discloses a non-aqueous electrolytic solution and a lithium secondary battery comprising a positive electrode, negative electrode and non-aqueous electrolytic solution which comprises a non aqueous solvent and an electrolyte which further contains 0.001 to 0.8 weight % of a biphenyl derivative having the following formula as shown in claim 1 in which of Y^1 represents a hydroxyl group, an alkoxy group, a hydrocarbyl group, a hydrogen atom, an acyloxy group, an alkoxycarbonyloxy group, an alkylsulfonyloxy group or a halogen atom, and each of p and q independently is an integer of 1 to 3 (abstract, Example 1 and paragraph [0055] as applied to claims 1 and 9).

The biphenyl derivative has the following formula as shown in claim 2 in which Y represents a hydroxyl group, an alkoxy group, a hydrocarbyl group, a hydrogen atom, an acyloxy group, an alkoxycarbonyloxy group, or an alkylsulfonyloxy group (abstract, Example 1 and paragraph [0055] as applied to claim 1 and 9).

The non-aqueous solvent comprises a combination of a cyclic carbonate and a linear chain carbonate (paragraph [0049 as applied to claims 5 and 6).

The non-aqueous solvent comprises a high dielectric constant solvent which is selected from the group consisting of *ethylene carbonate, propylene carbonate*, and butylene carbonate, and a low viscosity solvent which is selected from the group consisting of *dimethyl carbonate*, methyl ethyl carbonate, diethyl carbonate, tetrahydrofuran, 2-methyltetrahydrofuran, 1,4-diode, 1,2-dimethoxyethane, 1,2-diethoxyethane, 1,2-dibutoxyethane, γ-butyrolactone, acetonitrile, methyl propionate, and dimethylformamide (paragraph [0049] as applied to claims 7 and 8).

The difference between instant claims 1 and 9 and JP '258 is that JP '258 does not teach of providing the biphenyl in the range specified in claims 1, 3, 4 and 9.

The incorporation of the biphenyl additive in the electrolyte is to improve the safety of the battery (abstract). The tradeoff for adding the biphenyl to the electrolyte is that it reduces the capacity and cycling performance of the cell.

Therefore there is an obvious expectation which would have been apparent to one of ordinary skill in the art that optimizing the biphenyl additive to values below the range of JP '258 would have improved the capacity and cycling characteristics while slightly reducing the cell safety as described in JP '258.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '258 by reducing the biphenyl additive to a lower value while still having the biphenyl additive present since it would have still provided a degree of safety to the cell while improving the cycling and capacity of the cell itself. Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence

indicating such ranges is critical. In re Boesche , 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). It has been held that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range or value is minor. Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985).

Response to Arguments

6. Applicant's arguments with respect to claims 1 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues the difference in the weight percent of JP '258 relative to the lower range of the instant claims.

The tradeoff between the level of the biphenyl additive in the electrolyte is between the safety characteristics and cycling and capacity. In particular providing the biphenyl additive at increasing levels will provide improved safety to the cell while reducing the cycling and capacity of the cell. Conversely reducing the biphenyl additive will reduce the degree of safety characteristics provided by the biphenyl additive to the electrolyte while exhibiting improved cycling and capacity.

While the ranges between the instant claims and JP '258 are not identical, varying the range of the biphenyl below the range of JP '258 to the range of the instant claims, is held to be optimization of a result effective variable. The results of increasing

or decreasing the biphenyl additive as discussed above would have been apparent to one of ordinary skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (571) 272-1283. The examiner can normally be reached on Monday to Thursday from 9 a.m. to 6 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregg Cantelmo
Primary Examiner
Art Unit 1745

gc

April 14, 2004